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DOCUMENT-IDENTIFIER: US 5939262 A
TITLE: Ribonuclease resistant RNA preparation and utilization

DEPR:
An mRNA may be packaged in vivo by cloning the gene of interest, such as the CEA gene (associated with many different tumors and thought to be a tumor rejection antigen), into a vector such as pAR-1. The gene would be cloned immediately downstream of the Operator sequence in pAR-1. As well, the EMCV translation sequence would be cloned between the Operator and the CEA coding sequence. In this way, the CEA RNA may be translated without requiring a 5' CAP to enhance translation of the mRNA.

DEPR:
For in vitro transfection, the CEA-Armored RNA.RTM. would be mixed with the tissue cultured cells, with or without forming liposomes before transfection. The liposomes may enhance fusion of the Armored RNA.RTM. with the cells. Also, the CEA-Armored RNA.RTM. may be microinjected into oocytes. The use of Armored RNA.RTM. would forgo the requirement for the usual precautions in handling RNA. In these procedures, it is expected that the Armored RNA.RTM. would dissociate upon entering the target cell and release their packaged RNA so that it is available for translation.

DEPR:
If a one time vaccination is not enough to produce a protective immune response, then multiple immunizations may be required. In this case, the Armored RNA.RTM. themselves may be immunogenic and would become less effective at transfection as the individual develops immunity to the Armored RNA.RTM. itself. Multiple vaccinations may involve using Armored RNA.RTM. developed from RNA bacteriophage from several different serotypes. All of the Armored RNA.RTM. vaccinations would contain the same protective mRNA, however, it would be packaged by phage capsids from different serotypes. For instance, the RNA coliphages are divided into serological groups I, II, III and IV. There are also the two strains of P. aeruginosa RNA bacteriophase. Thus, the CEA mRNA may be packaged in as many as 6 different Armored RNA.RTM. and each would be used for each different immunization.

URPN:
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bind neutralizing antibodies may be expressed by or as part of the chimeric viruses. For example, heterologous gene sequences that can be constructed into the chimeric viruses of the invention for use in vaccines include but are not limited to epitopes of human immunodeficiency virus (HIV) such as gp120; hepatitis B virus surface antigen (HBsAg); the glycoproteins of herpes virus (e.g. gD, gE); VP1 of poliovirus; antigenic determinants of non-viral pathogens such as bacteria and parasites, to name but a few. In another embodiment, all or portions of immunoglobulin genes may be expressed. For example, variable regions of anti-idiotypic immunoglobulins that mimic such epitopes may be constructed into the chimeric viruses of the invention.